**IT Applications Unit 3, AOS 1, Online Communities**

Complete the following, from pgs, 14-18: **Network communication standards**

**Networks are classified according to below and we will study the following:**

1. **Network Categories: LAN, WAN**
2. **Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet**
3. **Network communication standards**
4. **Network hardware and software**
5. **Transmission media**
6. **Network security**

**Network communication standards**

1. Why are network standards required?

To overcome the incompatibility problems on a network and to ensure that hardware and software components can be integrated into any network. Essentially it allows data from one network to be easily processed into any other network.

1. What is a protocol?

A protocol is a standard that defines how two computers or devices on a network transit data. The protocol determines:

-Type of error being used

-The data compression method, if one is being used

-How the sending device will indicate that it has received a message

- How the receiving device will indicate that it has received a message.

1. What is the OSI?

Open Systems Interconnection is the standard for internet connection (7 layers) used for making programs.

**Ethernet**

1. Describe the nature of Ethernet?

Network standard that describes communication over a single cable shared by all devices on the network. A device that is connected will be able access all other computers

1. What are frames?

Short messages sent between nodes which contain packets of information

1. Identify the 4 components of all Ethernet frames.

The destination node address, the sending address and some data. The frames also contain parity info.

1. Fig. 1-9 on p 17 lists the Ethernet type, cable type, maximum length and transfer rate for Ethernet transmissions. The College typically uses 100BaseTX, Cat 5 or10Gbase-T. What are their respective maximum lengths and transfer rates?

**TCP/IP**

1. Describe the nature of TCP/IP.

TCP/IP (Transmission Control Protocol/Internet Protocol). This is the protocol on which the internet is based. It defines how data is carried from one part of the network to another. The Standard itself specifies the rules to construct small packets of data.

1. TCP/IP uses smaller packets than other protocols. Why is this an advantage on the internet?

There are usally more pathways from the originating device to the destination device and the packets don’t have to travel on the same path. They give many more options to the network management software to enable local balancing.

**802.11 wireless standard**

**1** What does this standard do?

It defines how two computers or device communicate via radio waves.

1. What is a Wi-Fi network?

Technically called the 802.11 wireless standard, a Wi-Fi network allows computers that are up to 50 metres apart to be connected without the use of wires.

3 Different wireless standards transmit at different frequencies. What is the advantage of the newer 802.11n standard?

There are multiple advantages in the new standard (larger range and faster) but the distinct advantage is that it can operate at either 2.4 GHz or 5 GHz so if another Wi-Fi network is working at 2.4 GHz the 802.11n can switch to 5 GHz to avoid any interference.